

# DRAGON VERSUS TIGER BABY PREFERENCE: HOW DOES CHINESE ZODIAC INFLUENCE FERTILITY?

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## INTRODUCTION

- General trend of recent, rapid fertility decline across Asia is interrupted by small yet significant booms & busts in Tiger & Dragon years, respectively
- Modernization trends (contraception) provide means to act on traditional, astrological beliefs in populations influenced by Chinese culture
- Decision-making around auspicious birth years reflects combination of traditional 'superstitious' beliefs with parental rational choice and desires to invest in children
- Fluctuating birth trends are relevant for public health and policy making in Asia

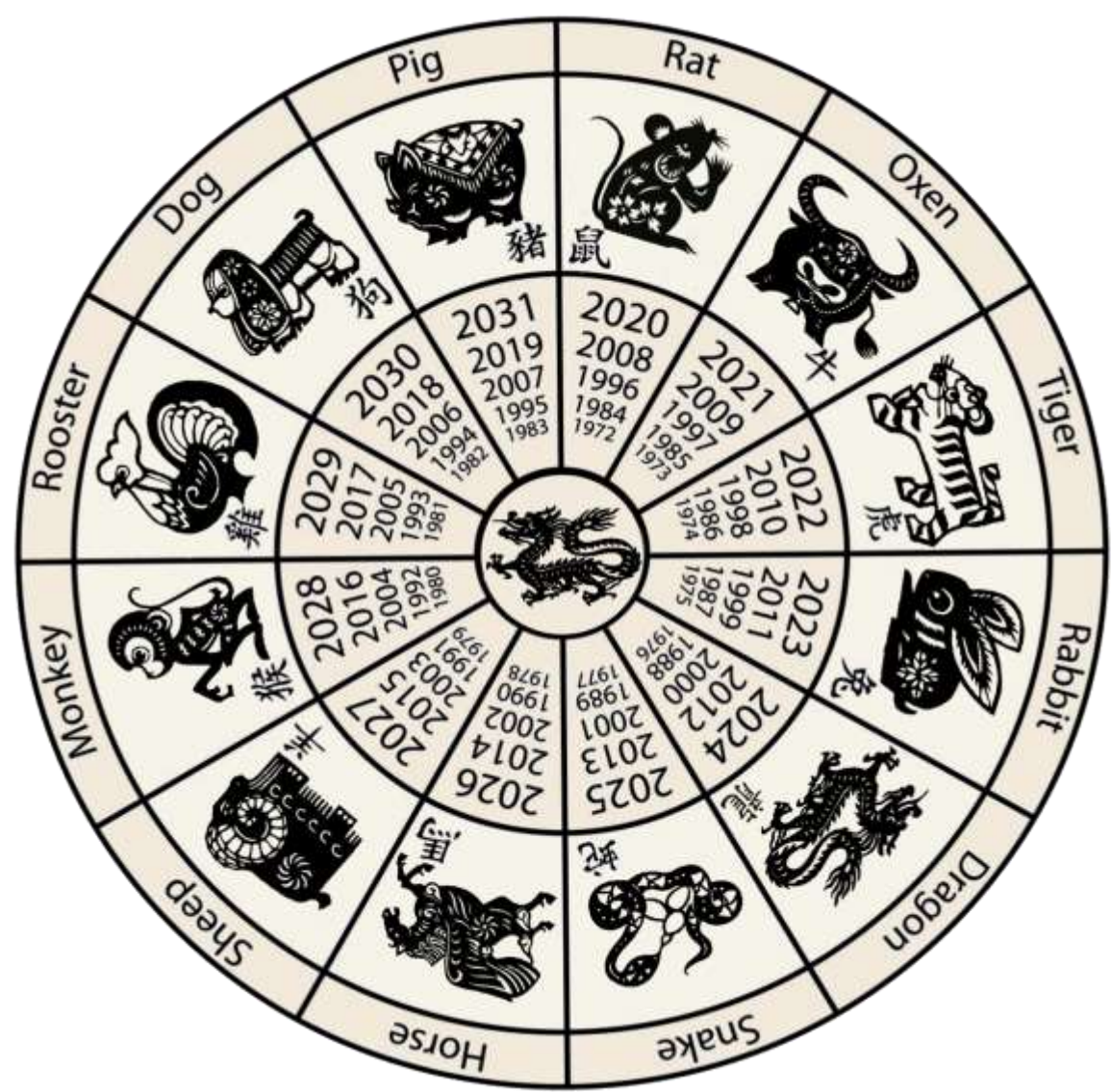
## ZODIAC & FERTILITY IN ASIA

Enter the Dragons: A Baby Boom for Chinese Across Asia



Source: BBC News (Jan 19, 2012)

## CHINESE ZODIAC



- Composition of 12 lunar years
- Rotation of 12 animals representing each year
- Association between animal of birth year and a person's traits and fortune
- Each zodiac animal associates with different characteristics for person
- Dragon: mythical animal, luckiest year, bringing success
- Tiger: hot tempered, exposure to bad luck through life course

Source: [www.artic.edu](http://www.artic.edu), 2000

## HYPOTHESES

- **H1:** Trends in fertility will reflect Dragon and Tiger year birth preferences in some East Asian countries/societies.
- **H2:** Countries/societies at more advanced stages of development will show stronger evidence of Dragon preference and Tiger avoidance than countries/societies at lower stages of development.
- **H3:** Dragon booms and Tiger busts will be more apparent in countries/societies with very low rates of fertility (TFR <= 1.5 for a sustained period )

## DATA & METHOD

- Data compiled from the World Bank website at <http://data.worldbank.org/>
- Sample: six countries/societies in East and Southeast Asia practicing Chinese zodiacal beliefs, including China, Hong Kong, Malaysia, Singapore, South Korea (Korea, Rep.) and Vietnam
- Crude birth rates (CBR) and total fertility rates (TFR) graphed and compared over 50 years (1960-2010)
- Selected development indicators in most recent Tiger and Dragon year:
  - Income level,
  - Gross domestic product (GDP) per capita,
  - Percent urban,
  - Life expectancy at birth
- Identification of annual birth peaks and dips:
  - "Peak": CBR or TFR in one year which is higher than the CBR or TFR of the previous and following year
  - "Dip": CBR or TFR in one year which is lower than the CBR or TFR of the previous and following year

Figure 1. Crude Birth Rates (CBR) for Six Asian Countries from 1960 to 2010

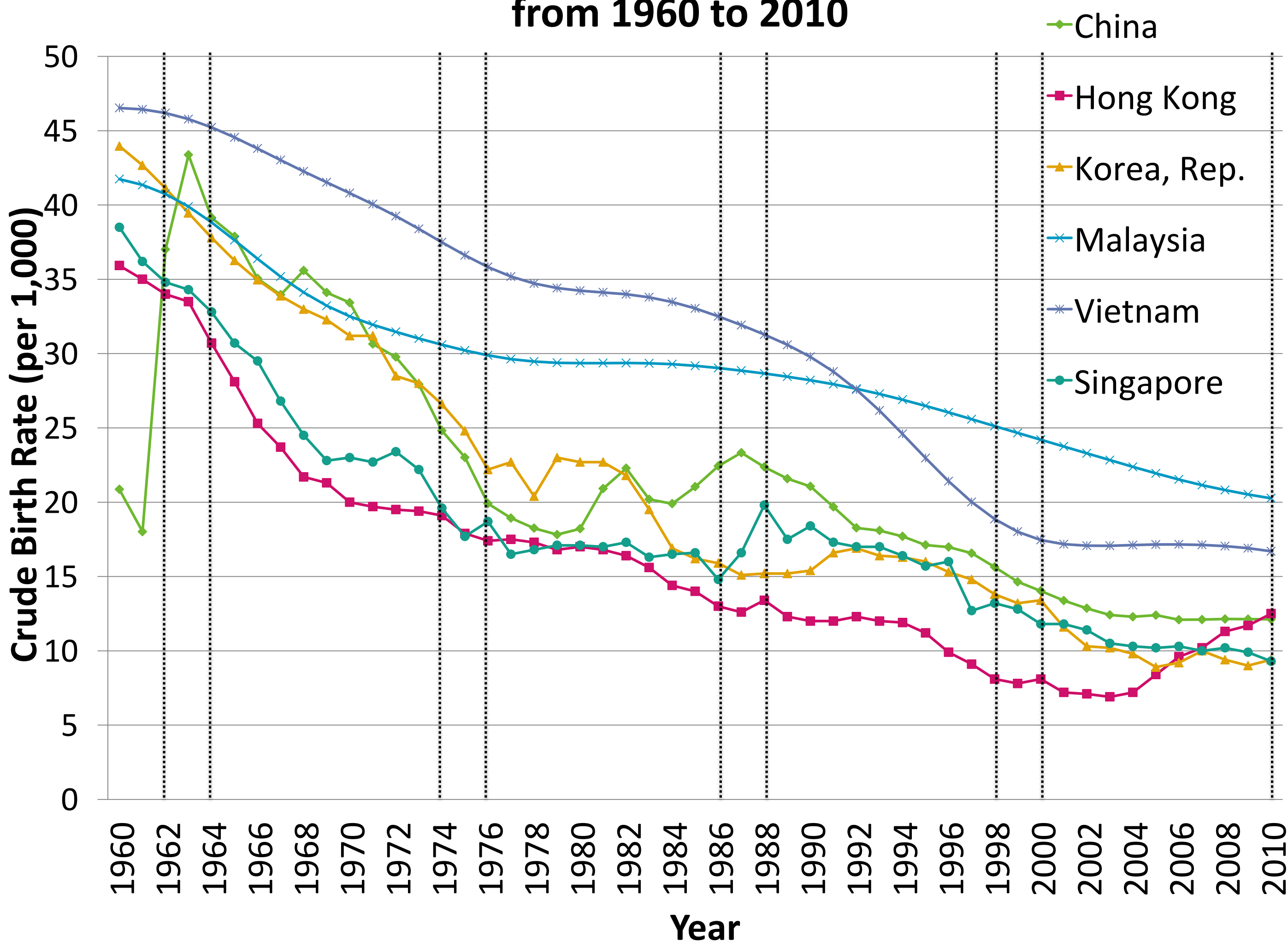
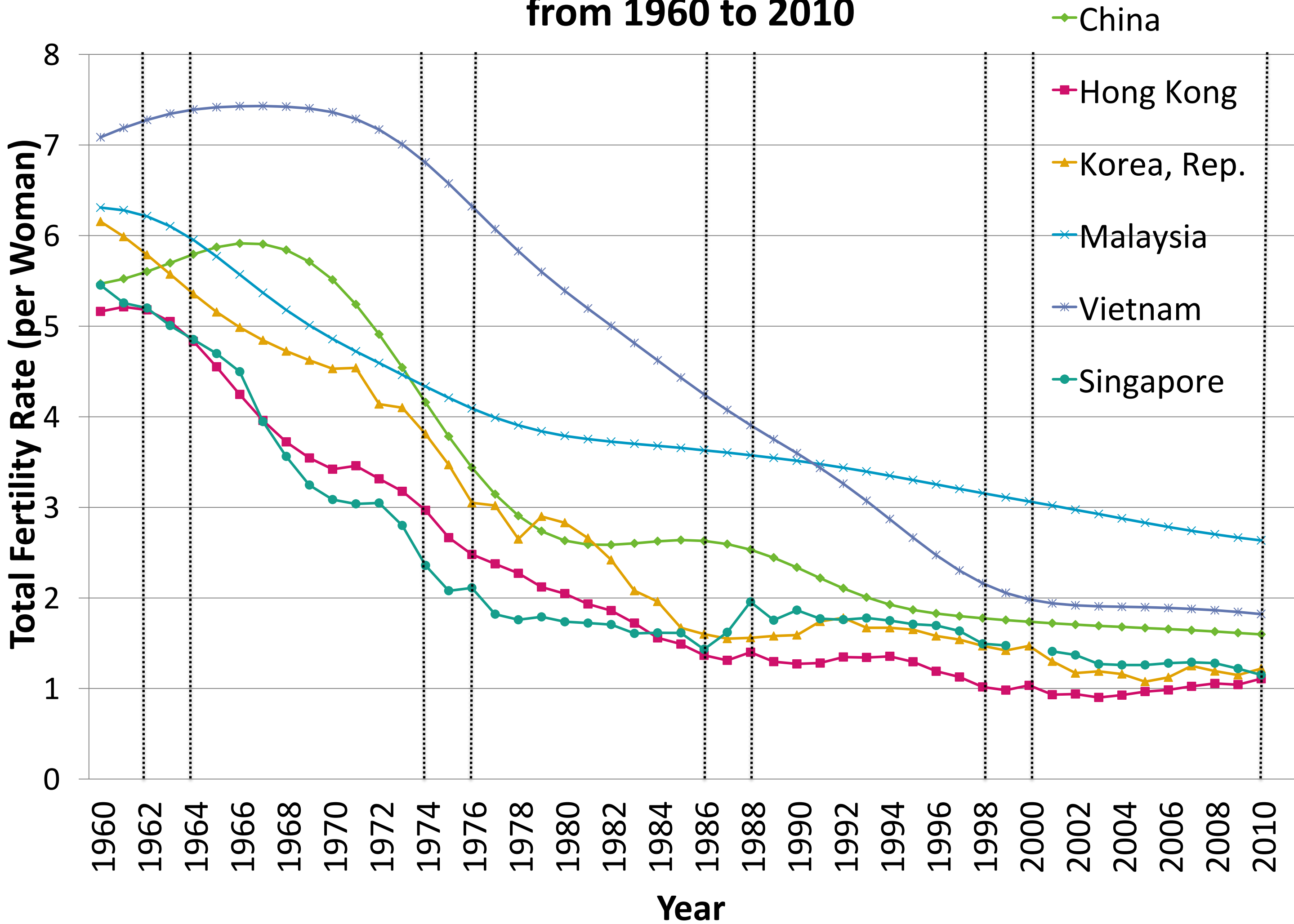


Figure 2. Total Fertility Rates (TFR) for Six Asian Countries from 1960 to 2010



Summary Table: Selected Development Indicators and Evidence of Zodiacal Influence on Fertility of Six Asian Countries

Indicators	China		Hong Kong		Malaysia		Singapore		Korea, Rep.		Vietnam	
	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010	2000	2010
	Dragon	Tiger	Dragon	Tiger	Dragon	Tiger	Dragon	Tiger	Dragon	Tiger	Dragon	Tiger
	Upper middle income		High income		Upper middle income		High income		High income		Lower middle income	
Income level												
GDP per capita	949.18	4432.96	25756.66	32374.48	4005.56	8690.57	23814.56	41986.83	11346.66	20540.18	401.55	1224.31
Percentage of urban population	35.88	49.23	100.00	100.00	61.98	72.01	100.00	100.00	79.62	82.93	24.37	30.39
Life expectancy at birth	71.24	73.27	80.88	82.88	72.14	74.02	78.05	81.64	75.86	80.76	71.95	74.83
Total fertility rate	1.737	1.598	1.035	1.108	3.065	2.635	-	1.15	1.47	1.22	1.983	1.822
Year(s) with evidence of zodiacal influence on fertility	-	-	1988, 2000	-	-	-	1976, 1988, 2000	1986, 2010	2000	-	-	-

Note:  
-, Data unavailable or no evidence

## RESULTS



### DRAGON YEARS: 1964, 1976, 1988, 2000

- No evidence of Dragon baby boom before 1976
- 1976: Higher CBR and TFR for Singapore
- 1988: "CBR and TFR peak" for Hong Kong and Singapore
- 2000: "Slight CBR and TFR peak" for Hong Kong and South Korea



### TIGER YEARS: 1962, 1974, 1986, 1998, 2010

- No evidence of Tiger baby bust before 1986
- 1986: "Dip" in Singapore's CBR and TFR
- 1998: No evidence of Tiger baby bust
- 2010: "Potential dip" in Singapore's CBR and TFR

### OVERARCHING PATTERNS

- Zodiacal influence on fertility rates apparent in higher income countries of East Asia. No evidence of zodiacal peaks or dips in China, itself
- Dragon booms and Tiger busts have only emerged in countries at or below replacement level fertility (TFR <= 2.1)

## CONCLUSION & DISCUSSION

- Fertility trends in recent decades provide evidence of fertility timing adjustment to achieve Dragon births and avoid Tiger births in only certain Asian societies
  - Singapore, S Korea and Hong Kong experience miniature Dragon booms and/or Tiger busts – these countries share in common very low fertility levels and high income
- Evidence of Dragon booms and Tiger busts is lacking in China, as well as Vietnam and Malaysia – these countries are characterized by ethnic diversity and middle income status.
- China and Vietnam's fertility trends reflect strict family planning policies; in China astrological beliefs have been de-emphasized in the post-communist era
- Astrologically-based fertility booms and busts may impact competition for resources in Dragon and Tiger cohorts as they move through health care system, schools and work force
- Directions for future research:
  - Analyses that examine whether certain regional, class and ethnic groups within China & other large, diverse societies are influenced by astrological beliefs
  - Exploration of whether Tiger and Dragon children experience differential outcomes late in life due to parental investment and/or resource competition